RELATIONSHIP BETWEEN SCHOOL-BASED ASSESSMENT RANKING AND PROBLEM-SOLVING ABILITY OF A/L CHEMISTRY STUDENTS

A PROJECT REPORT PRESENTED BY

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Abstract

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Competency level is an important yardstick in school-based assessment (SBA). A student with full of competencies must be a good problem solver. My experiences puzzled me over this opinion. Even though student got high competency level at SBA, some of them did not show good result at public examinations.

This project is mainly launched to study that puzzlement students face at General Certificate of Education (Advanced Level) (G.C.E. (A/L). A/L students show weaknesses in solving numerical problems in chemistry.

Students' skill on solving problems is specially measured as a tool to assess the physical chemistry achievement.

50% of total marks for the chemistry question paper have to be earned through the ability of solving numerical problems during last few years. Therefore students' knowledge on the subject and ability of mathematics are very important. Hence it is very important to identify difficulties students face.

The study was carried out in four stages; in the first stage two questionnaires prepared were given to A/L students and teachers. Their opinions on school based assessment and ability to solve numerical problems were questioned. For this, sample of thirty students and teachers were taken from near by schools. Through the analysis it was found that, 78% of student like SBA, but 47% of students revealed that these two measurements are totally different from each other and not interrelated.

In the second stage, a sample of 100 students also was selected from the selected schools in Galle and Matara. Their competency levels of SBA were compared with their 2005 G.C.E. (A/L) results for chemistry.

In the third stage, a diagnostic test was implemented for 200 students who are face in 2006 G.C.E.(A/L), selected from five schools. This test paper was designed to judge students' skill in mathematics and subject matter. In order to that, 20 questions were prepared and the test was conducted for both male and female students who follow both physical science and biological science subject streams. Raw data obtained were converted into percentages and analyzed quantitatively. Students' numerical competency level and numerical problem solving skills were quantitatively compared with the "Spearmen rank" method.

In the fourth stage chemistry question papers of past ten years at A/L (1996-2005) were analyzed.

Analysis of teacher's questionnaires reveals as teachers task are wider and they are unable to successfully complete the syllabus, they are reluctant to conduct SBA. Neither students nor teacher show clear idea about problem solving method.

Comparison of students' performance in chemistry at G.C.E. (A/L) 2005 and SBA competencies shows there is no relationship between both evaluation methods.

The analysis of test instrument shows that the problem-solving ability. It reveals that inabilities of Mathematic are not the main problem for the students to solve numerical problems. It influence weaknesses of writing scientific notation, weakness of substituting data into the equations, carelessness of handling values of quantities, low ability of problem solving strategies are the general weakness while reaching the final answer. Further statistical analysis reveals that, ability of problem solving and SBA marks are interrelated and numerical problem solving ability and numerical competency levels an also interrelated.

Even though the findings of the study show that the problem solving ability of students is not in a satisfactory level, the analysis of past ten years chemistry papers reveals that the number of questions on numerical problems solving have been increased. This is one of the factors that influence the A/L results of students in chemistry.